

OLD DOCTOR YATES

By Charles L. Camp

MUSEUM OF PALEONTOLOGY,
University of California, Berkeley



REPRINTED FROM

JOURNAL
of
the WEST

Volume II, Number 4 — OCTOBER, 1963



A comprehensive, illustrated quarterly magazine devoted to Western History and Geography

Vol. II, No. 4

OCTOBER, 1963

OLD DOCTOR YATES

By Charles L. Camp

MUSEUM OF PALEONTOLOGY,
University of California, Berkeley

IN AND ABOUT SANTA BARBARA in the '80's and '90's he was known as Old Doc Yates. His dental chair was set up at the southwestern end of the old Carrillo adobe of Spanish days. Apprehensive patients were soothed and charmed by the view out the door leading into a greenhouse installed on the porch where ferns and orchids from all parts of the world luxuriated and a ripe pineapple proudly raised its fragrant head. It was the only pineapple ever brought to maturity in California up to that time and perhaps to the present time. Displayed on the shelves of this unique establishment, instead of the usual collection of instruments of torture, was an assortment of fossil mammoth teeth, prehistoric artifacts from the shell mounds, a stuffed condor from the nearby mountains, specimens of mineral and shells, a facsimile of the original draft of the National Anthem, and diplomas and membership certificates in many foreign and domestic scientific, dental, and horticultural societies from years gone by.

Dentistry had advanced beyond the crude frontier makeshifts of the gold rush days, when equipment consisted of little more than a sawed-off whiskey barrel for a chair, a strap to hold the wriggling victim, a crude homemade extractor or a pair of household forceps, a center punch and hammer, hickory pegs to anchor loosened teeth, and plenty of pure leaf

gold to sledge into the cavities; for it would have been worth a dentist's life to use amalgam in the Golden West.

Doc Yates' present equipment was something else again, for he manufactured many of his own implements, and compounded some of his own drugs. His most permanent and indestructible adjunct was his assistant, a certain widow whose own teeth, badly decayed, bore poor testimony to the skill of her master. Her disposition was scarcely better than her dentition, and her hackles would rise at anyone so bold as to maintain the authority of organized religion.

Her first husband had been a horticulturist of local fame who had left her a small farm on the sunny mountain slope above Montecito where all sorts of exotic trees and shrubs struggled for survival among the native weeds and brush — each tree had a little bottle wired to it containing the scientific name and the date of its planting. There was also an orchard of custard apples, which remains on the old place as it stands today, a primitive sort of botanical garden.¹

It was here on this hillside farm, in the one-room cabin, that Old Doc spent his last days. His marriage to his assistant, less than a year before the end, had come as no surprise to the neighbors, who thought that this ceremony should properly have been celebrated long before.

But Old Doc left a legacy to Santa Barbara far more valuable than a few legends and a lot of quite competently filled teeth. His dream from boyhood had been to learn everything he could about natural history and to collect everything possible in the way of books and specimens. His life was devoted to this end and his fervent hope was to found a museum at Santa Barbara to encourage interest in the study of nature. His own collections were to become the nucleus of this project, but nothing was done until Miss Carolyn Hazzard, Max Fleischmann, and others, generously provided support for the present active and influential Museum of Natural History near the Mission Road.

The present museum is but an indirect result of Yates' enthusiasm. He lived thirty years too soon, and society and politics didn't catch up until much of his effort was dispersed to the four winds. He died regretting this failure of his desire, but if he could now see what has happened, he might feel better about it.

Lorenzo Gordin Yates might be called a type specimen of that now nearly extinct species of non-specialized, old-time amateur naturalists who spent their lives ferreting out and describing the wonders and curiosities of nature. California has had more than her share of such enthusiasts, attracted by the unique features of her isolated world of life. Before and immediately after the conquest, the region became a stamping ground for the explorer-naturalists and commercial collectors, as well as for those who came here to live. Yates was one of the first of

Old Doctor Yates

these to make his home in California, and his period of activity filled a gap between the government and state surveys and the rise of the universities and academies.

Yates' period in California, between the 'sixties and the opening of the twentieth century, represents the passage from wilderness and desert to the over-running of the land by mankind. The records of this all-too-brief interval will be of increasing value as the State inevitably becomes one of the most densely populated regions of this earth, with rapid elimination of primal conditions evolved over countless ages.

Yates spent the last forty-four years of his life in California where his fellow-devotees included some persons equally proficient or superior in their chosen fields, but there were none of wider interests, more prolific in writing or more industrious in gathering specimens.

California of that day was the foraging ground for such naturalists as Dr. J. G. Cooper, the conchologist-ornithologist; H. C. Ford, the artist-horticulturnist-shell collector; San Diego's all-around genius, C. R. Orcutt, long-time editor and publisher of the *West American Scientist* and other evanescent amateur periodicals; Dr. L. N. Dimmick of Santa Barbara, R. E. C. Stearns of the California Academy; J. J. Rivers, curator of the University of California Museum at Berkeley; E. W. Claypole, professor of Geology and Biology at Throop Polytechnic Institute, Pasadena; and the Rev. Stephen Bowers, amateur archaeologist and conchologist, editor of newspapers, as well as the short-lived *Pacific Science Monthly*, and promoter of the Bard petroleum enterprises at Ojai and San Buenaventura. T. D. A. Cockerell was probably the very last of this company of now-extinct, universal collectors and investigators.

The influence of the early amateur naturalists on California history and affairs has been but little understood or discussed. Naturalists, geologists, and anthropologists visited the California frontier to study and collect in a relatively unknown and unique wilderness. Many spent their lives here, often obscurely, sometimes tolerated as harmless enthusiasts, perhaps regarded as slightly touched in the head. A few were welcomed as teachers, investigators and writers, and one or two with literary talents, such as John Muir, rose to renown.

The impact that Yates made on contemporary society was largely local, but it was a real impact. His career was probably of more importance than would be apparent from a superficial glance. He had an unusual sensitivity to the wonder and beauty of the world of nature, in which he took solace from the cares of family and professional life. He made up in hard work and natural intelligence what he lacked in early schooling for he had barely eight years in a private elementary school. Nevertheless, he became facile in literary expression, and he was eager to develop his many talents in other directions. One scarcely ever finds

an error in his papers, he rarely misidentified a specimen or made a factual blunder. His later work was interrupted by illness. He scattered his energies prodigally almost as widely as his collections and writings have been scattered in our time.

He was one of the first to collect fossil vertebrates systematically in California. He entered this field with the Whitney Survey in 1867, and continued as an independent worker. He also plotted the extent and content of the shell-mound middens along the east side of San Francisco Bay, and made accurate drawings of the artifacts uncovered there and elsewhere.

He mapped and studied the geology and archaeology of the Channel Islands, where he was the approximate discoverer and the first to recognize the significance of the fossil pygmy elephants on Santa Rosa Island. And he wrote considerably on geology, prehistory, botany, paleobotany, and conchology.

Yates was able to interview some of the last survivors of tribes now extinct in Southern California. And he learned their use of charm stones, thereby answering one of the riddles of prehistoric archaeology.

His shell collection was famous in its day, as was his collection of living and mounted ferns. He had a large set of local photographs, some of which are still preserved, an autograph collection, an herbarium, a collection of mosses and lichens, and files of early California newspapers.

Lorenzo Gordin Yates was born on January 12, 1837, at East Church on the Isle of Sheppy in the mouth of the Thames. He was the son of Richard Owen and Rosetta Mary (Chambers) Yates. The Isle of Sheppy is a noted locality for early Tertiary plant and animal fossils which continually wash out from the cliffs to the beach, and there young Gordin made the first of his many collections, and acquired an interest in natural history that influenced his career and ripened in California.

At the age of fourteen, after an education in private schools, he had made up his mind to travel extensively and planned to visit Port Natal, the new English colony in South Africa. This became impossible, so he sailed for America instead, landed at New York in 1851 and worked there at menial jobs. A desire to see the West soon took him off to Wisconsin where he began the study of medicine and dentistry under the supervision of Dr. Edwin M. Thorp, a graduate of Ann Arbor. The doctor trained his young apprentice to manufacture the drugs used in an extensive practice and Gordin in this way gained some knowledge of chemistry and mineralogy.

The region of Sheboygan was then close to the frontier, and the lad devoted his spare time to the study and collecting of birds — encouraged in this and the methods of taxidermy by Spencer F. Baird, the assistant

Old Doctor Yates

secretary and later the distinguished head of the Smithsonian Institution, with whom Yates maintained a correspondence from 1853 until Baird's death in 1887.

During this period at Sheboygan, before Gordin Yates was seventeen years of age, he compiled an etymological lexicon giving the derivation of English words and their equivalents in many languages, including Arabic, Hindustani and Chinese, as well as those of ancient and modern Europe. This production is now with the Yates collection recently donated to the Bancroft Library at Berkeley. It contains a list of the books on natural history and travel that Yates was trying to obtain for his library.

After his medical apprenticeship, Yates was invited by a prominent physician at Westfield, New York, to study under his guidance at a medical college. The sudden death of that preceptor altered Yates' plans; and after spending some months in Pennsylvania and Michigan, he went to St. Louis where he was seriously stricken with malaria and was advised to return to northern Wisconsin where he spent a year outdoors, hunting and studying the wild life.

He then began the practice of dentistry at Ripon, Wisconsin, and in 1861 was married to Eunice Amelia Lake, the daughter of a professor at Ripon College. The couple moved to Fond du Lac in order to practice in a larger community and three years later came to California by way of Nicaragua in November, 1864. They chose the wayside village of Centerville, situated on the main road, dusty in summer and muddy in winter, connecting San Leandro (the county seat) and Mission San Jose in Alameda County. The land was devoted largely to stock and grain. The produce was shipped mainly from the port of Newark, which was known as Mayhew's (or Jarvis') Landing. Fruit orchards and vineyards were being planted for the first time, and the American settlers of this district were becoming established.

Here Yates set up an office in his residence, a small building on the main street. He was visited by the local people and some patients came from a distance as his fame spread, for he was highly regarded as a dentist, and he was also a justice of the peace, and a notary public.²

As an appointee of the State Geological Survey under Professor Josiah Dwight Whitney, he assisted Dr. James Graham Cooper in bird collecting, although his name is not mentioned in the report by Baird and Cooper. His reports remained largely unpublished at the close of the Survey in 1874, and he failed to induce the Mining Bureau to print them later. The Mining Bureau also declined to publish some of J. G. Cooper's work on the land snails, and the notes of C. D. Voy on the Channel Islands.³ The Bureau, after the Legislature had discontinued the Whitney Survey, was shying away from anything savoring of natural history.

JOURNAL of the WEST

YATES ON ANTHROPOLOGY

At Centerville, Yates found himself living close to a long line of Indian shell mounds extending along the east shore of San Francisco Bay. Before ten years had passed he had excavated and mapped a number of these mounds. There still exist artifacts and drawings of artifacts from these sites, but the map he drew has not been found.

Most of these aboriginal town-sites and middens have now been destroyed with the advent of farming, land-leveling, the spread of subdivisions, and the building of railroads, freeways and airports. The mounds were rich in burials, ornaments, stone utensils, talismans and other artifacts accumulated over two or three thousand years of occupancy. Yates' records add to the history of these sites and should be of increasing value in years to come.

During his early days in California, Yates made trips to Yosemite and into Napa, Solano and Lake Counties in search of minerals, fossils and shells for his museum. Here he looked up survivors of the Indian tribes passing so rapidly into extinction, and he secured from them samples of their legends and magical lore. A vocabulary of one of the California Indian tribes was sent by Yates to the Bureau of Ethnology, (letter of Feb. 19, 1887, to S. F. Baird).

In the region of Santa Barbara and Ventura, Yates conducted similar interviews, and by presents of tobacco and cider secured from some of the less reluctant informants their notions as to the magical uses of charm stones. These data were elaborated into his famous essay which gave one answer to a long-standing puzzle in prehistoric archaeology. Great numbers of similar objects found in an old lake bed in Sonoma County seem to favor the view that in that locality they were used as bolos to be thrown at water birds.

Later on, when arthritis forced Yates to abandon his dental career, he turned to his pen for a livelihood and wrote a series of popular articles on Indian life for the *Overland Monthly* and other magazines. Here he discussed such topics as aboriginal weapons, deserted villages on the Channel Islands, medicine men, smoking pipes, relics, "pictoglyphs," fish hooks, and papoose carriers.

Yates visited the gold diggings from 1866 to 1868, and secured from Dr. Snell of Sonora some artifacts purportedly found under the basalt flow of Table Mountain in the auriferous gravel of a buried river channel (letters to Baird). Casts of some of these were sent to the Smithsonian in 1868, and gave rise to "animated discussion" on the subject of "Pliocene Man" at the Chicago meeting of the American Anthropologists. Further notes on that notorious controversy are to be found in some of Yates' later writings and letters. He maintained that Dr. Snell was too cautious a man to have been fooled by hoaxers, and he believed that the

Old Doctor Yates

skull and artifacts had actually been removed from under Table Mountain as stipulated by their finders.

Yates goes on to say that C. D. Voy, the collector whose data are questioned by Holmes, probably got nothing from Snell as the relations between the two men were strained. And Yates states that Holmes had overlooked the forgotten Yates material at the Smithsonian. On June 5, 1903, Yates in a letter to Holmes lists fifteen caves and rock shelters in California, mostly containing human remains.

Concluding chapters in Yates' contributions to anthropology are his "Archaeology of California" in Moorehead's work on "Prehistoric Implements," and the brief discussions in "Prehistoric California." There are also manuscripts on "aboriginal cooking" and "totems" which are not known to have been published, as well as accounts of Hawaiian artifacts.

CONCHOLOGY AND INVERTEBRATE PALEONTOLOGY

Young Gordin Yates became enthusiastic over shell collecting due to the friendship and interest shown toward him by Spencer F. Baird. In the Wisconsin years, in the 'fifties, Gordin received instructions from Baird on putting up bird skins. Following this, Baird sent him some shell collections, duplicates from the Wilkes' and other expeditions. This material stimulated an interest in conchology which became a lifetime pursuit and one of Yates' chief interests. His collection eventually was said to have numbered 50,000 catalogued specimens. These included land, fresh water, marine and fossil shells. His printed catalogues list over 2,300 species of land and fluviatile shells, about 3,000 species of marine shells, and some 1,200 species of fossil invertebrates.

He published lists of the Mollusca of Santa Rosa Island, the Mollusca of the Channel Islands with indications as to their varied uses by the natives, and the Mollusca of Santa Barbara County. While on his visit to Yosemite in 1866, he found a peculiar snail living in a cave at "Cave City," Calaveras County. This new genus and species was named *Ammonitella yatesii* by J. G. Cooper in 1869, and has been regarded as a survivor of a form that lived during the "Oligocene." *Ammonitella yatesii praesursor* was described by R. E. C. Stearns in 1900, and this form is now regarded as identical with "*Planorbis lunatus*" Conrad 1871, from the Bridge Creek Oligocene of Oregon.

Recent studies confirm the view that this remarkable land snail, superficially resembling the fresh-water *Planorbis*, is really an ancient and distinct form, existing as a relict very locally distributed in the foothills of the Sierra. Dr. G Dallas Hanna after a dissection of the anatomy of *Ammonitella yatesii* says: "The enormous length of time the genus has been in existence is very remarkable. The fossil *A. lunata* is abun-

dant in the John Day Basin strata of Central Oregon which is supposed to be of Oligocene age. That form differs little from *A. yatesii*" (*Proc. Calif. Acad. Sci.*, Vol. XII, No. 4, 1923, p. 47). Hanna's studies place *Ammonitella* in the Helicidae. Pilsbury more recently assigns it to the Camaenidae, subfamily Ammonitellinae (*Land Mollusca N. Amer.* Vol. I, Pt. 1).

Yates' own account written twenty years after the event says: "On reaching Murphy's we took our saddles and horses, and visited 'Calaveras Cave' at 'Cave City'; the 'City' consisted of two houses in one of which lived the proprietor or guide. He was absent, but a man who happened to be lying around volunteered to see us through, for a consideration. We armed ourselves with tallow candles and were soon threading the mazes of the underground labyrinth — while examining the soil and peering into crevices [I] discovered [*Ammonitella yatesii*] and while searching for more specimens and oblivious of all else, was left by the rest of the party, (who were not at all interested in the search) to find [my] way out the best [I] could."

This indicates that the type specimens were found within the cave. Hanna found all his specimens near the entrance to the cave, and none inside. Hemphill (*Zoe*, Vol. III, 1892, p. 45) who was the second naturalist to visit the site, got some of his specimens as far from the cave as Murphys. Hemphill thought that the snails wandered into the cave accidentally, and did not habitually live there. Dr. Hanna confirmed this observation.

While busily engaged in building up his shell collections at Center-ville, Yates corresponded with several of the prominent American conchologists, including Isaac Lea, J. G. Anthony, and James Lewis. Yates' letters to Anthony are preserved at the Museum of Comparative Zoology, Harvard College. The letters from Lewis to Yates during the years 1874-76 are interesting and gossipy. They give opinions as to taxonomy of many California shells and furnish lists of duplicates sent by Lewis to Yates. In fact the entire file of thirty-three letters deals almost entirely with fresh-water shells. The intense interest of Yates and Lewis can be seen in this correspondence which has been deposited in the library of the California Academy of Sciences.

In 1888 Yates described two new species of fossil pen shells (*Pinna*) from Alameda Creek (Miocene), Alameda County, and from Casitas Pass of Ventura County. These two are now believed to be conspecific and the Casitas Pass locality is now regarded as of Miocene age. *Pinna alamedensis* is one of the commoner shells of the San Pablo Miocene in the East Bay region. The University of California, Santa Barbara, has what are presumably the types of these shells.

While on a visit to Anacapa Island, Yates noticed that the snail,

Old Doctor Yates

Helix ayresiana, seemed to be in danger of extinction owing to the exhaustion of its food supply, the cactus, by the goats. He, therefore, transplanted a few of these snails to the hills north of Montecito in order to "save the species." Some were also sent to "South Pacific Islands," (probably to William Colenso in New Zealand).

A curious item came up in a meeting of the Santa Barbara Natural History Society in 1889. Dr. Earl Flint, who first described the human footprints impressed into volcanic mudstone at Lake Managua, Nicaragua, had sent some fresh-water shells (*Pyrgula nicaraguensis*, *Bull. Soc., Malacol, Franc*, Vol. V, 1888, p. 194) to Yates, and Yates, in donating them to the Society's Museum said that the shells were "the only guide to the age of the footprints," and went on to quote Flint's opinion as to the great age of those footprints. The shells live at present in Lake Managua and their presence at the track locality (not far from the lake) may indicate that the lake once covered the site. Otherwise it is difficult to see how these recent shells could serve to date the site. Howel Williams in his "Geologic observations" on Managua (*Carnegie Inst. Wash. Publ.* No. 596) is unable to date the tracks precisely. He mentions gastropods found near the tracks, but the specimens were lost before they could be identified.

In 1890 Yates described a new subspecies of *Helix carpenteri* (*H.c. indioensis*) collected by Stephen Bowers near Indio in what was then San Diego County. Three shells from the Santa Barbara Channel were described also in this year: *Venus fordii*, *Cerithium lordii*, and *Vermetus fewkesii*. The next year Yates notes the introduction of *Helix aspersa* into California.

Early in 1893 Yates made arrangements with James Perrin Smith, the distinguished professor of invertebrate paleontology at Stanford University, to loan his shell collection to Stanford. This was done. The collection remained at Stanford for seven years when it was returned with a very complimentary letter from Professor Smith assessing the scientific value of the collection. Meanwhile, the material had been sent to Mills College and offered to them at a price, which was refused.

As a final honor, two years before his death, Yates had a fossil shell named for him from the Triassic of the Inyo Range, by Prof. H. W. Turner (*Venericardia yatesii*).

VERTEBRATE PALEONTOLOGY

Yates' first extensive collection of fossils from California was sold to Wabash College in the summer of 1872 for approximately \$3,000. This collection is now in the Chicago Museum of Natural History. Many of the vertebrates were found in Alameda County, particularly at Arroyo las Positas, a mile north of Livermore, where at least two Pleistocene

horizons still produce fossils. This collection was the source of several early vertebrate types described by Joseph Leidy in the *Hayden Survey Monographs*, Vol. I, 1873. One of them was a jaw fragment of a lionlike cat which Leidy named *Felis imperialis* (now referred to as *Felix atrox*). Others were the horncore of an extinct bison, the lower molars of a large camel or llama named by Leidy, *Auchenia hesternus* and lately placed in the genus *Camelops*. The carnivore jaw that Yates called *Hyaenodon* was referred by Leidy to *Canis indianensis* and is presently called *Canis dirus*.

Leidy also listed the localities at which Yates had collected remains of mastodons in California, and he gave the name *Mastodon shepardii* to a specimen from Dry Creek, Stanislaus County, obtained in "Pliocene sandstone at the base of a high perpendicular bluff." Another mastodont lower jaw and one upper molar was collected south of Antioch in Contra Costa County and the "entire skeleton" was said to have been left behind in the rock. Another mastodont tooth came from a "tunnel on the railroad between Somersville and Pittsburg Landing." All these mastodont specimens were evidently destroyed in a fire at Amherst in 1882.

Yates' discovery of vertebrate fossils in California apparently dates back to 1867 when he found an elephant tusk and jaw near Mission San Jose (*Alameda County Gazette*, June 8, 1867). The locality was "a deep ravine out of Stockton Cañon [near Mission San Jose] embedded in coarse bluish gravel forty feet below the surface." An upper molar, eight and one-half inches in length, was sent to Amherst College. The tusk went to Wabash College, and the jaw with five teeth went to Yale with the first donation to O. C. Marsh in 1872.

After a rainstorm in the winter of 1871-72, Yates visited the Arroyo las Positas evidently for the first time and found fossil bones washed out of their matrices and scattered along the stream bed for "quite a distance," just as they occur today. This collection included two large elephant molars weighing twenty-four and one-half pounds each and measuring seven by eleven inches; skeletal parts of two other elephants, as well as the material described by Leidy.

E. O. Hovey's statement from Wabash that this material came from a "wash in the side of a hill" is a little misleading. At Arroyo de las Positas the stream has cut through a surface layer of pebbly conglomerate which encrusts the fossils, and is flowing in a channel fifteen to twenty feet deep, floored with grey-blue shale which contains clean bones and is unconformable with the gravel beds above. Both layers are Pleistocene in age.

In 1874 (letter dated June 26, in *Pacific Rural Press*?) Yates announced the discovery of "*Equus occidentalis*" in two localities in Alameda County, one near Centerville in "Quaternary gravel" (probably

the present Irvington locality), and the other near Dublin in a soft sandstone bluff, twenty-five feet below the surface, where four upper molars of *Equus* were found.

In the winter of 1875-76, Yates found his "fossil ox" or bison near Irvington and tried to encase it in plaster, with poor results. The horn core measured twenty-four inches in length and six inches in diameter. The *Alameda County Independent* of September 16, 1876, mentions the "lower jaw of an elephant [from Las Positas Creek] . . . where others were found several years ago." The molar measured nine by four inches.

Soon after his first collection was transferred to Wabash College, Yates began more carefully to examine the gravel beds along the hill-slopes one-half to one mile southeast of Irvington, in beds that have recently been extensively worked by the boy paleontologists of Hayward under Wesley Gordon, (material described by Dr. Donald Savage in the *Bull. Dept. Geol. Sci.* of the University of California, Berkeley).

Yates also collected fossils at other places in Northern California, particularly along the bed of Alameda Creek; in the Stanislaus County Mother Lode, and near Santa Rosa. Meanwhile, he was busy excavating in the Indian mounds in Washington and Murray Township, as well as adding to his large botanical, mineral and shell collections, and building up his library.

Yates' fossil hunting activities were centered in Alameda and Contra Costa Counties, with excursions north of the Bay, into the San Joaquin Valley, and into the Sierra Nevada. Some of his finds were the first of their kind. The most novel and puzzling was his discovery of an unknown, extinct "marine monster" represented chiefly by its peculiar teeth that look like tight bundles of old-fashioned cigars.

This creature remained enigmatical until lately when skeletons unearthed in Japan showed it to be elephantlike in appearance, and distantly related to the elephant family. Previously it was regarded as an aberrant seacow. It lived some twenty million years ago along the California and Japanese coasts. Evidently it scoured the beaches and mud-flats in search of clams and other shellfish which it probably dredged up with its four lower "clam-scoop" tusks, and crushed with its remarkably strong teeth. It glories under the peculiar name — *Desmostylus* or "bonded pillars," referring to the teeth.

Yates' first specimen of *Desmostylus* was given to him by a friend who found it in a sandstone boulder from the bed of Alameda Creek in 1869. The specimen was extracted in fragments, and wrongfully identified as a "mastodon." Yates gave the pieces to Yale University, and from 1872 to 1880 he sent or gave to Professor O. C. Marsh of Yale several other teeth and bones of the unknown monster. Marsh visited Yates in California in 1871 and encouraged Yates in his collecting.

Edwin Bryant, Walter Colton, the PACIFIC RAILROAD REPORTS and

THE MARINE MONSTERS OF ALAMEDA COUNTY.

From the Alameda County Independent.

Dr. L. G. Yates, of Centreville, a well-known and industrious naturalist, has discovered the remains of a remarkable animal in our county. We expected an account of it for the *INDEPENDENT* some time since, but the Doctor had promised it to Mr. Lyser's *School Journal*. So we now extract the most important part of his description for the benefit of our readers, who are all familiar with Livermore Valley, near which the remains were found. He says:

"At a point about one mile south of the valley, we discover the line between the cretaceous and the more recent miocene; here we find evidences of animal life in great profusion. Shells of mollusca, teeth of sharks, fossil wood, and other organic remains make up a large portion of the miocene sandstone, and here the writer discovered the bones and teeth of the animal whose name furnishes the heading for this article. Among oysters of immense size, mussels, clams, and other mollusca generally lying loose on the surface, weathered out by disintegration of the sandstone, fragments of teeth, the bones of an entirely new and undescribed monster had been lying unnoticed on the summit of a rounded hill, from which the disintegrated portion of the sandstone rock had been washed and blown away by the winds and storms of ages. What is it? We examine the fragment; it has been worn away on one end and split longitudinally, showing the internal structure; it is evidently a tooth, perhaps of some huge reptile. We examine more closely; then other fragments are found, and we notice the teeth have the appearance of having been subjected to pressure, showing two and three flat sides at right angles with each other; other fragments from near the base of the crown of the tooth; these show that the root of the tooth did not extend downward as a continuation of the crown, but at the base

of the flattened sides, the enamel or rather the exterior portion of the cusp folded back upon itself, and we are convinced that the tooth was compound and not a simple tusk, as at first supposed, and that the flattened sides of the pieces showed where the cusps had fitted up against each other, giving them the appearance of having been rolled up in bundles while in a plastic condition; next we find three of these cusps united together at the base, evidently constituting one side of the crown, indicating an approach to the molar of a mammal. Again, we discover portions of ribs and joints of the limbs, nearly as large as a man's head; and perfect joints of the vertebrae imbedded in the sandstone rock and conglomerate near the surface, also smaller bones of a fin or paddle; still we explore for more characteristic portions of the animal. After some months have elapsed, a friend, while resting on the summit of a steep bluff some half a mile from the original discovery, accidentally picks up an entire crown of a tooth, composed of six cusps united at the base, extending upward some three or four inches and fitted closely together, somewhat as we sometimes see cigars which have been bound together at the ends while yet soft and pliable. One of our most eminent Eastern paleontologists, to whom this tooth was shown, at first thought that it belonged to some unknown animal allied to the mastodon, which had been carried into the ocean and distributed on its bed. But the situation and surroundings, together with the vertebrae and the bones, indicate a new undescribed cetacean, which flourished in the miocene sea, and has not been reported outside of Alameda county. Here the writer and others have found fragments scattered over a distance of from ten to fifteen miles, evidently by the action of currents east and west. It is easy to account for the destruction of the carcass by predatory fishes of the period in which the animal lived and died."

— Courtesy Museum of Paleontology, University of California, Berkeley

FIGURE 1 —

NEWS ITEM OF A YATES DISCOVERY

Yates' description of the amphibious monster, DESMOSTYLUS, circulated as a broadside in 1877.

other sources in the 1850's mention a so-called "whale skeleton" on the rounded summit of a hill south of Livermore. This specimen evidently lay uncollected until 1872 when Yates visited it and came away with a fragment of a tooth which he sent to Marsh on October 19 of that year. Marsh had a drawing of this fragment made which he used in his original description of the beast in 1888. At that late date he had received other more perfect specimens from Yates, so it seems clear that the drawing of the fragment antedated the receipt of the better material. This drawing represents the holotype in the Yale collections, which now retains no original label. But it may be identified by reference to Yates' letters to Marsh and by Yates' description published in Lyser's *Pacific School and Home Journal* in 1877 (Vol. I, No. 3, pp. 77-79). This prophetic description was copied in part in the *Alameda County Independent* and reissued as a broadside.

Yates evidently returned to the Whale Hill locality in 1874 and collected additional teeth along with ribs, vertebrae and fragments of limb bones. Labels on some of these specimens now at the University of California, Santa Barbara (Geology Department), read: "From original locality of the type specimens of teeth . . . Hills south of Livermore — Alameda Co. Calif." The rounded hill in question apparently lies near the Arroyo del Valle, five to six miles south of the town of Livermore, and a mile or so south of the Cresta Blanca Winery.

Yates' original 1877 account mentions large oyster shells and other invertebrates which led him correctly to give the age of the type locality as Miocene. Marsh called it "Pliocene." V. L. VanderHoof, who published an extensive study of *Desmostylus* in 1937, did not see the material which serves to identify the type locality and he suggested that this was probably somewhere in the limestone member of the Briones at the base of the Upper Miocene, "just east or west of Mission Peak in Alameda County." Yates did make collections on the southwest slope of Mission Peak and there is a *Desmostylus* tooth in the Yale collection so labeled, but it is not the genotype.

Yates joined many scientific societies. He was elected a corresponding member of the California Academy of Sciences in 1867, a corresponding member of the San Francisco Microscopical Society in 1870, and an associate of the Victorian Institute (Philosophical Society of London).⁴

In 1867 he wrote the first treatise of its kind on the Pacific Coast — "The California Digest of Masonic Law" (published in San Francisco in 1868 by Edward Bosqui & Co., 236 pp.)⁵

Among Yates' other writings during the Centerville period were seventeen articles entitled "Rambles of a Naturalist," printed in the *Alameda County Independent* (Irvington), from June 12, 1875, to August 11, 1877. The first of these was "Notes on the Indians of Clear Lake" (June 12). The second: "The Relics of the Mound-builders of California"

(June 19). Nos. 3-6: "Localities of Mounds in Alameda County, Washington Township" (June 26, July 3, July 10, July 17); No. 3 was copied in the *San Francisco Chronicle*, July 4, 1875, with a paragraph added. Nos. 7-9 "Localities of Mounds in Murray Township" (July 27, 31 and Aug. 7). Nos. 10 and 11 "Aboriginal Money" (Aug. 4 and 21). No. 12 "A Reminiscence of the 'Dark Days' of Alameda County" [The Ciraco Sucre Murder], (Sept. 11). Nos. 13 and 14 "On the Fossil Animals of Washington Township" (Sept. 18 and 25). No. 15 "The Fossil Ox of North America" [Description of the bison found at Irvington], (Feb. 12, 1876). No. 16 "Description of Unique Specimens of Indian Mortars Found in Washington Township" (date?). No. 17 [Indian mound on Alviso Slough], (Aug. 11, 1877).

At this time Yates was "corresponding agent" for the *Mining and Scientific Press* and the *Pacific Rural Press*. To the latter he contributed many articles, and to the former at least one entitled "The Northern Quicksilver Mines" (Dec. 2, 1871). He wrote up a list of "Remains of Fossil Elephants and Mastodon in California" for the Agassiz Institute of Sacramento, which was published in their *Proceedings* in 1873.

Correspondence with Professor Marsh was continued for eight years and Yates' letters are on file at the Yale Peabody Museum. One letter mentions fragments of bird bones described later by R. W. Shufeldt (*Trans. Connecticut Acad. Arts and Sci.*, vol. XIX, 1915, pp. 64 and 67). One of these, a sternum from the Irvington gravels, is the type of a new species of a small turkey *Meleagris richmondi*. The other from the bed of Arroyo las Positas, is a carpo-metacarpus of the goose *Branta canadensis* and since it was not found in place it may be simply a recent goose.

GEOLOGY

In the spring of 1876, Yates explored Santa Rosa Island at the invitation of the Reverend Stephen Bowers of Ventura who was collecting specimens for the Smithsonian Institution. The fruits of this expedition were papers by Yates on the "Mollusca," in the *Quarterly Jour. of Conchology* (Leeds), No. 10, Nov. 1876; and a summary of the geology which was incorporated by Bowers in his report (*Ann. Rept. Smithson. Instn.*, 1877 [1878], pp. 316-320). Yates published his own geological notes in one of the Santa Barbara newspapers in 1876, and his original notes are still extant, together with a map that he and Bowers drew up. The observation was made that the fossil elephant remains discovered by W. G. Blunt in 1871 indicated former connections with the mainland. This has now been confirmed, but as late as 1890, W. A. Goodyear and others (*Calif. State Mining Bureau*, 9th Ann. Rept. of State Mineralogist, pp. 155-170) were still contending that the islands had had no continental connections. Yates was apparently the first to identify the basalt flow on Anacapa Island, and the volcanic series on Santa Rosa and Santa Cruz Islands.

Old Doctor Yates

Yates found the society at Santa Barbara with its group of horticulturists including Elwood Cooper, Joseph Sexton, H. C. Ford the artist, and others, more congenial to him than the primitive town of Centerville where he had "no one that [he cared] to talk with," where he found it "hard work to be lazy," where his "baby has been quite sick for some time which breaks my rest and makes me nervous . . . I begin to think I am badly located [Centerville, Nov. 3, 1874]. When I came here we were centrally located but since the completion of the Overland Railroad we are left out in the cold. . . . Have my office cabinet in my dwelling house which enables me to while the time in which I am not engaged in business in working at my collections. [Feb. 10, 1875] "Have quite a number of drawings made, of the various stone implements of this State." "This study and work, and dig, and dig, and work is tedious . . . I hope to be able to dispose of my general collection this year . . . I have got tired of this everlasting work, work and no pay. I cannot see that it is doing justice to myself or family and I intend to shut off on it . . . Have had rheumatism in neck and shoulders."

All this induced him to move to Santa Barbara in November, 1881, where he became a valuable addition to the Santa Barbara Natural History Society (founded in 1876), and took an active part in its deliberations, serving eventually as its secretary and its president. The local newspapers from then until 1908 carried hundreds of short articles by and about Doctor Yates and his activities.

Yates was looked upon as a sort of local oracle in scientific matters. The townsfolk brought in strange products of the sea to be identified — chimaeras, jelly fishes, unknown shells and seaweeds. Insects, pests that damaged the fruit trees, weevils from an old warehouse, wharf borers, these and many more were described and explained. Some boys got him to stuff a giant condor they had found in the mountains. Hunters brought in heads of the last bighorn sheep to be killed in Ventura County. He made excursions to the mountains and to San Miguel, Santa Rosa, and Anacapa Islands. He spent two years at the De Young Museum at San Francisco where he arranged and catalogued the collections and wrote a guidebook from which his name was stricken before it was published.

His scientific writings, aside from his many privately-printed catalogues, lists, and broadsides, include some three hundred short articles in newspapers and magazines. I hope soon to publish a list of them in the *Journal of the Society for the Bibliography of Natural History*, in London.

In 1902-1905 appeared Yates' comprehensive essay: "Prehistoric California, its topography and fauna — with evidence of the time of advent of man, and his development, from the records of his past found in the soil." This appeared in the *Bull. Southern Calif. Acad. Sci.*, Vol. I (1902) — Vol. IV (1905). The plates had been lithographed by the

State Mining Bureau and were transferred to Yates for use in these articles and in the projected book which never appeared, although a proof title-page was printed.

BOTANY, PALEOBOTANY, HORTICULTURE AND FLORICULTURE

One of the paradoxes was the meticulous care that Yates devoted to his collections, and especially his herbarium, as contrasted with the slight attention he paid to his personal appearance and comforts. He crowded into one lifetime the normal collecting activities of several naturalists. Continually busy, he would scarcely pause long enough to dress, wash or eat. His herbarium sheets and the volumes of pressed ferns that survive show this curatorial exactitude and care.

Ever since the boyhood years on Sheppy Isle, where he collected fossil wood and palm nuts, he had been interested in paleobotany. His passion for collecting and cataloguing pushed him into almost every field of natural history. Botanizing was one of his chief interests, and horticulture became a professional activity in his later life.

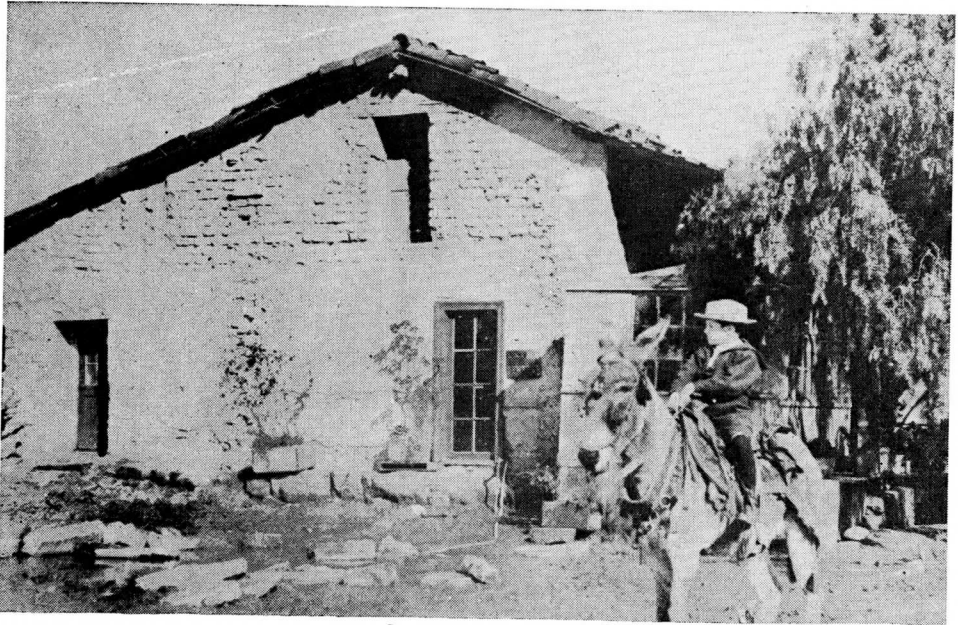
Yates made a collection of central California native woods in the late 'sixties. It seems to have been sent to C. U. Shepard at Amherst College and was probably destroyed when Walker Hall at Amherst was burned in 1882.

In 1879 Yates began writing squibs on botany, fossil botany, and horticulture for various agricultural journals and horticultural and floricultural magazines. Many of these articles deal with beneficial and injurious insects. Yates became proficient in his later years in the recognition of scale insects, and the propagation of lady beetles as enemies of such pests. He is said to have reared the grub of a lady beetle, captured under the shell of a black scale insect. He performed experiments, testing out the effects of different species of lady beetles on the scale pests, and he undertook to raise the beetles himself when a shipment of millions of beetles to San Francisco was destroyed by fire.

In May, 1905, Yates' career as a dentist having ceased, he was appointed Horticultural Commissioner for Santa Barbara County to succeed Professor T. N. Snow. In the course of this work he acted as president and secretary of the Santa Barbara Commission, and helped to reorganize the Commission. He inspected orchards for scale insects, condemned infected fruits, and reviewed the laws for control of noxious weeds and pests. His duties terminated in June, 1906.

When still practicing at Centerville, Yates engaged in the culture of orchids, begonias, cacti and ferns, and the construction of small greenhouses and porch conservatories. Later, in Santa Barbara, he was receiving ferns from distant parts of the world, resuscitating the dried plants

Old Doctor Yates



— Courtesy Museum of Paleontology, University of California, Berkeley

FIGURE 2 —

SANTA BARBARA DENTAL OFFICE

Old Doc Yates used the southwest end of the Carrillo Adobe as his dental office. The adobe was located at No. 9 Carrillo Street. The conservatory on the porch opened into the dental office.

by sprinkling them with gum camphor solution, and experimenting to see what varieties might be best suited to the climate. He collected local island ferns, made up systematic lists of ferns in various parts of the world, and published such lists from California, Jamaica, Hawaii, Tonquin, and Ceylon. All this led to a projected: "All Known Ferns" for which subscriptions were solicited at \$3.50 a copy. A title-page was set up and printed, but the work never issued and the manuscript seems to have disappeared.

In 1890 a newly discovered fern from Ecuador (*Acrostichium Yatesii*) was named for Doctor Yates. And in 1888 a crowning honor was his election as a Fellow of the Linnean Society of London in place of Asa Gray, deceased.

THE MUSEUM

There was some local interest in his museum, and efforts to secure it for the city were made before and after his death. It had been loaned, in part, to Stanford University and was offered for sale to that institution, to Mills College (for a price of \$30,000), to the City of Santa Cruz,



— Courtesy Museum of Paleontology, University of California, Berkeley

FIGURE 3 —

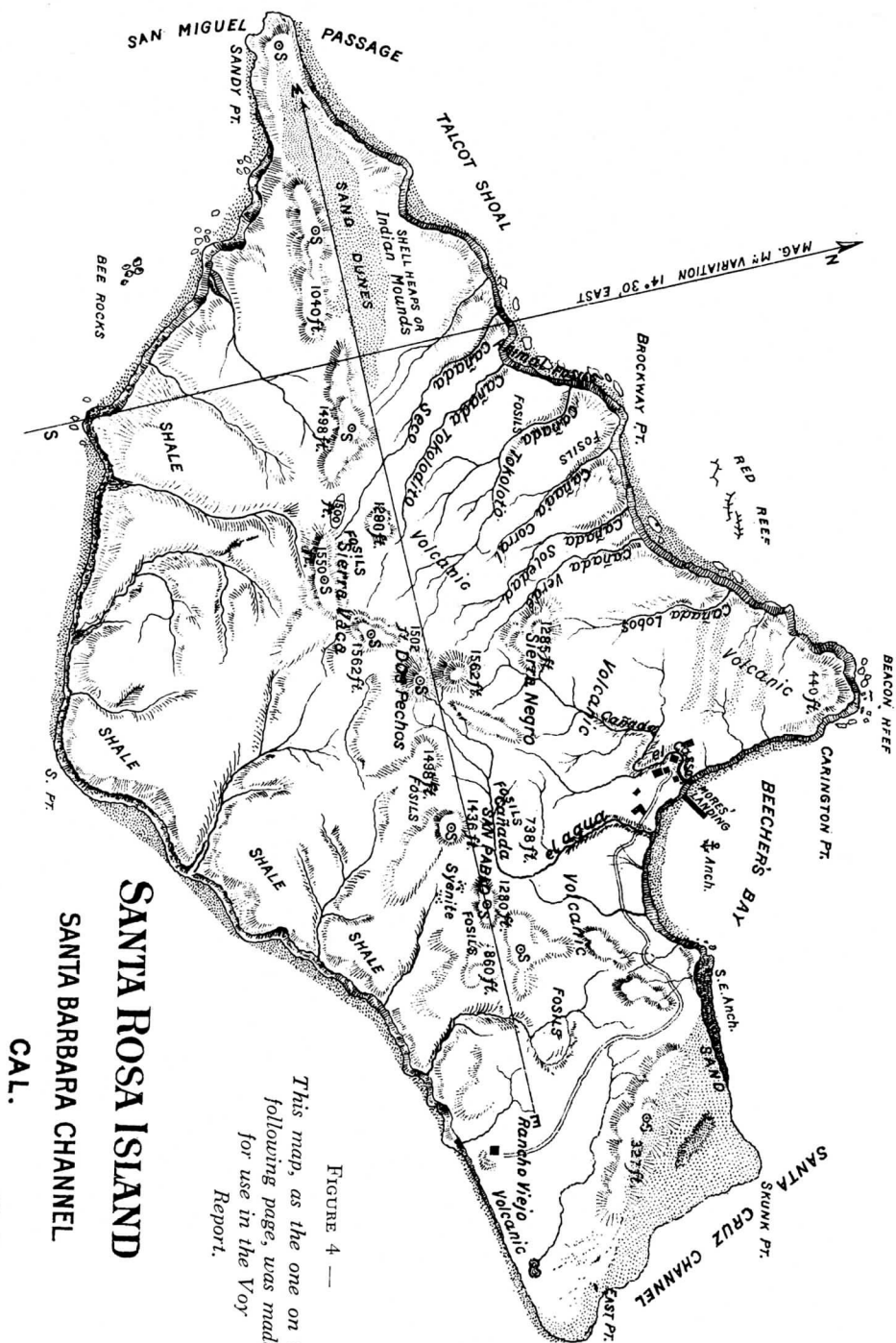
YATES EXPLORATION PARTY

This photograph shows the group at the old sheep ranch on Middle Anacapa Island in August, 1889. I. N. Cook, the photographer, is the man with the white beard. To his left is seated H. C. Ford, the artist. D. L. G. Yates sits to the right of the man with the gun. Dr. L. H. Dimmick is possibly the bearded man sitting to right of Cook.

and to Los Angeles. It was distressing that all efforts to preserve it were abortive. His widow, Mrs. M. I. C. Yates, loaned the collection to the Los Angeles County Museum on February 5, 1912, and following her death the material was sold by the Yates estate to A. J. Young for \$650 on May 28, 1936. The following October, Young sold it to J. T. Lowry, a relative of Mrs. Yates, for the reported price of \$10, and Mr. Lowry sold it to Frank S. Van Den Bergh for \$300 on January 29, 1937.

Mr. Van Den Bergh transported the material in several truck loads from Los Angeles to Santa Barbara on November 3, 1937, and stored it in various places, partly in the Court House Tower, from where it was parceled out to various individuals and institutions.

Besides the remaining collections, there is much, published and in manuscript, that will interest the botanist, anthropologist, and horticulturist of today — many reliable observations that may become useful in our time.⁶ His drawings of Indian artifacts and his manuscripts of



This map, as the one on the following page, was made for use in the Voy Report.

SANTA ROSA ISLAND
SANTA BARBARA CHANNEL
CAL.

— Courtesy Museum of Paleontology, University of California, Berkeley

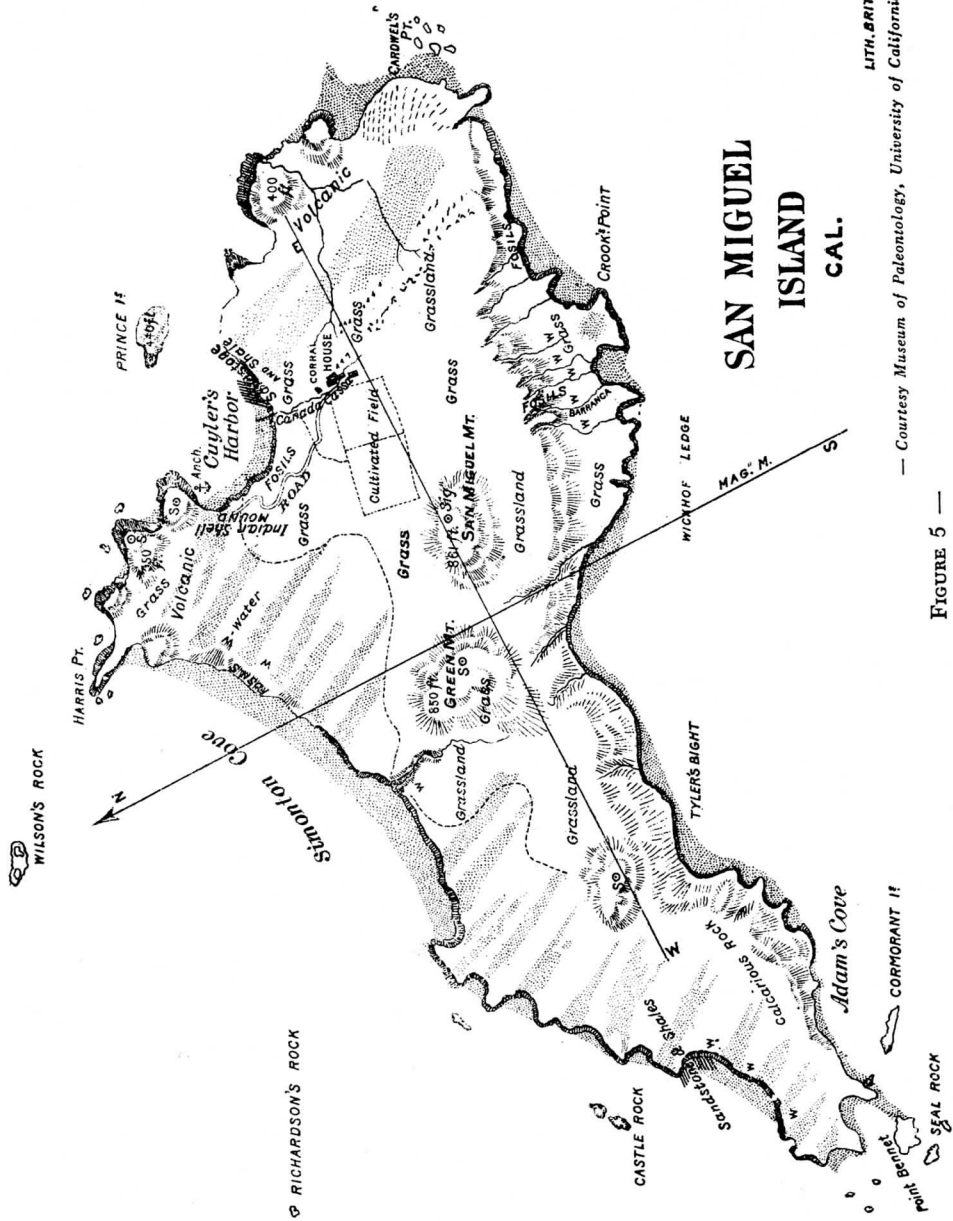


FIGURE 5 —

LITH. BRITTON & REY S.F.
— Courtesy Museum of Paleontology, University of California, Berkeley

Old Doctor Yates

Indian legends have been deposited in the Bancroft Library. Much rich material of a by-gone past is here in the Yates' manuscripts and sketches.⁷ An estimate could be made as to the influence that Yates had on paleontology, archaeology, horticulture and pest control in this State, and it was doubtless a considerable influence.

A yearly feature at Santa Barbara was the Flower Festival which I witnessed in the spring of 1896. Yates was an officer of the committee. The floats and carriages were decorated as they were in later years at the Pasadena Tournament of Roses. Prior to the Flower Festival, an annual Flower Fair was held at Santa Barbara. A note in a local newspaper (May 1, 1890) had this to say: "Dr. Yates of course was there — this year with only a few specimens. But they were even more odd than the Doctor himself. We note the terrestrial orchid (*Bletia*), from North India, *Anthurum* from Central America, and cactus and *cereus* all in bloom."

Yates was said to have taught school in Wisconsin in his youth, although from his slight schooling it might have seemed more fitting that he should have been in school himself. Subsequently he did very little formal teaching, but he had ability as a teacher. A record of conversations on one of his famous Santa Barbara "beach rambles" has been preserved.⁸ And his own account of his peripatetic system of teaching botany is also recorded.⁹ He went to Froebel Institute in Los Angeles "in charge of the scientific department" in September, 1893, taking some of his collections with him.

He was frequently called upon to deliver lectures. One of his favorite topics was the Calaveras Skull and "associated" material which he usually called "Prehistoric Man in California." He delivered this lecture before the California Historical Society.¹⁰ Horticultural and floricultural lectures were frequently given before various garden clubs and other groups. His addresses to the Southern California Academy of Sciences preceded the series of articles on "Prehistoric California" that appeared in their Bulletin. His skill as a lecturer is described by one of his listeners in 1897.¹¹ He was "not an orator. He does not entertain with poetic words and graphic descriptions. He is not an ideal lecturer. He is a scientist who understands his business and what he says on the rostrum is so interesting in the fact of it that the intelligent auditor has no care for the periods that are not well-rounded nor the humor that is absent."

The Doctor frequently took time from his labors to write a notice for the papers or for some obscure natural history magazine. The series entitled "Rambles of a Naturalist" appeared in a local newspaper and illuminates his early digging into the prehistory of Alameda County.

Many manuscripts and drawings have not been published. Among these is his "Autobiography" written in the third person for H. H. Ban-

croft and preserved in the Bancroft Library. Laden with self-praise, the author can hardly be accused of false modesty. Were it not in Yates' own hand, it would be difficult to believe that he was the author. Here are the concluding paragraphs:

The subject of this sketch in personal appearance is rather below medium height, slender but muscular build, dark grey eyes, head of unusual size, of quiet retiring manner, and a very ideal student. Never enters into discussion, evades enforcing his opinions on others, nor [is] self asserting in regard to surroundings or personal comforts.

He rarely consults books of reference, as when once a thing is read it seems to remain in its niche in the memory, ready, at bidding, as he has been known to spend weeks among the collections of others naming specimens of minerals, shells, fossils, etc., without any reference books.

He is capable of continuous labor for more than the ordinary length of time, especially mental labor. Often writes his best under pressure of great mental worry or physical fatigue.

No set style or groove of literary work is noticeable, connected thoughts flow readily upon a subject until completed, and no word or sentence needs correcting, no grammatical mistakes nor errors of punctuation . . . no haste, nervousness nor pet theories in writing or conversation. Friends and strangers alike feel the affability of manner when brought into contact with him either for business or pleasure. . . .

His genius was born with him and he has never acquired wealth.

Would that the world contained more of such gentle, peaceful, restful natures, instead of the over-energetic, money-getting, grasping mortals, who neither make happiness for themselves nor those about them, and who while life lasts sacrifice it all for gold and leave it for others to wrangle over.

Toward the last ten years of his life, Yates, forced by ill health to abandon his dental practice, undertook to support himself by writing articles for the San Francisco and Los Angeles newspapers and for the *Overland Monthly* and other magazines. These efforts provided but a meager livelihood and he soon abandoned them. He finally sold or traded away his best specimens, his gold quartz, his finest shells, to get food and drugs and liquor, for he had to forget himself occasionally on terrific binges. Death came on January 30, 1909, and was followed by the usual newspaper obituaries mentioning his labors and his collections.

THE YATES FAMILY

There were six children in the Yates family, five boys and a girl. The eldest, Albert Edward, was born on January 12, 1862, at Ripon, Wisconsin. He married Lelia Hill at Goleta, and died at Santa Barbara on August 26, 1892. Walter Sidney was born on March 27, 1863, at Fond du Lac, Wisconsin, and married Alice M. H. Kimmel at Buffalo, New York, on June 1, 1891. He studied medicine at Rochester, and was also a student of entomology. Frederick (Fred) William was born May 18, 1864, at Fond du Lac and married Mattie Walbridge at Santa Bar-

Old Doctor Yates

bara, November, 1894. Fred was a harness maker and died at Santa Barbara in 1940. George Owen Yates was born on November 26, 1866, at Centerville, California.

George and Walter took up printing in their boyhood days and published the first newspaper at Centerville — *The Centerville News Letter* — a juvenile sheet of which but two known copies survive. George went to Santa Barbara in 1882, and while there he neatly printed the numerous catalogues of his father's collections. He is said to have died in the Santa Cruz Mountains. At Centerville, George rode his horse like fury around the town, and Albert "licked the schoolteacher, jumped out the window and didn't come back to school no more."

The youngest son, Gordin Ruskin (Russ), born at Centerville, June 18, 1873, was in the harness business with Fred and died at Santa Barbara. The first girl baby, Florence Rosetta, born July 8, 1877, at Centerville, died there on May 30, 1878. The youngest child, Inez, born September 12, 1878, at Centerville, married Dr. S. A. Johnson at Topeka, Kansas, April, 1904, and is said to have died there before 1910. Dr. Yates had a sister, Mrs. F. M. Jepson of San Jose.

Dr. L. G. Yates' first wife, the mother of all his children, was married to the doctor in 1861 at Westfield, N. Y. She died on February 20, 1898, at Salina, Kansas, after a long separation from her husband. In the last year of his life, Dr. Yates married his dental assistant, Mrs. Mary Merrill Isabella Childs, August 6, 1908. She was the widow of George E. Childs, a botanist and horticulturist, and she learned dentistry while in Dr. Yates' employ. Their office and museum were finally located in two buildings at the southeast corner of Carrillo and Anacapa streets.

NOTES

1. Located at 2889 Mountain Drive, near Ashley Road, Montecito. Owned until recently by M. Eugene Gretler and lately (1953) purchased by Mr. and Mrs. David Gray, Jr. The small Yates-Childs' house on the property has been remodeled and enlarged by Mr. Gretler. About twenty-five of the cherimoya (custard apple) trees are still bearing, and the macademia nut tree is flourishing. Other rare trees, including a *Kigelia*, were identifiable by means of tags in small bottles. The report that a part of the Yates' museum was once stored in a silo on this property is legendary, there was never a silo on this place.
2. Yates' Centerville office was situated two doors east of the Union Hotel, and next to Doctor McKeen's office, about where the Ford Garage is now. Mrs. L. G. Yates taught the primary grades at the Centerville grammar school during the early 70's. The spelling "Centreville" was generally used, except by the U. S. Post Office. "Centerville" has been universally accepted for the past thirty years or more. The town is now a part of the city of Fremont.
3. The Voy manuscripts, two articles on the geology of San Miguel and Santa Rosa Islands, were preserved by Yates and have lately been placed in the Bancroft Library. The unpublished manuscript by Dr. Cooper is also in Bancroft.
4. Yates joined many scientific societies. He was elected a Fellow of the Linnean Society of London in 1888, occupying the vacancy left by the death of Asa Gray. He was a Fellow of the Geological Society of America; a member of the New Zealand Institute; a corresponding member of the Anthropological Society of Washington; the Agri-Horticultural Society of India; and the Torrey Botanical Club (New York). He was a member of the California State Floral Society, the American Conchological Society, the Southern Cali-

JOURNAL of the WEST

fornia Academy of Sciences, the Historical Society of Southern California and the American Forestry Association. He belonged to the California Dental Association, and the Southern California Odontological Society. He was for years secretary and then president of the Santa Barbara Society of Natural History, and of the Santa Barbara chapter of the Agassiz Association, and he later became president of the Santa Barbara County Horticultural Society.

5. Yates was Master of Alameda Lodge No. 167, from 1866-70, and from 1880-81. He was its secretary from 1873-78, and he also served as deputy grand lecturer of the Grand Lodge F. & A. Masons. He joined the Santa Barbara Lodge in 1884 and was inactive after 1890.
6. The Yates manuscripts, clippings, photographs, drawings and unpublished plates are in the Bancroft Library together with an annotated bibliography which I have compiled largely from the papers saved by Miss Elizabeth Mason who died in Santa Barbara in 1953. Yates made immense collections of letters and local newspapers, most of which were destroyed during the "paper drives" in World War II. The surviving letters and letterbooks show that he was actively corresponding with Colenso in New Zealand, James Lewis the conchologist, O. C. Marsh, E. D. Cope, Joseph Leidy, and many others.
7. A large part of the Yates' library is now in the Museum of Natural History at Santa Barbara. A number of bundles of manuscripts, letters and catalogues were preserved by Mr. M. C. Richter of Santa Barbara and have been donated to the Bancroft Library.

Some of the herbarium sheets, including a part of the fern collection, are at the Santa Barbara Museum. Other sheets of ferns are in the University of California herbarium at Berkeley. Many of the shells and larger artifacts are at the Santa Barbara Museum. The minerals and fossils are at the new campus of the University of California at Goleta. Recently (1956) these boxes have been opened and their contents rearranged in the Department of Geology collections at the University of California, Santa Barbara. The smaller artifacts — arrow points, talismans and spear points — were preserved in a private residence at Paradise Camp in the Santa Ynez Valley and some of them are now in the Santa Barbara Museum. A number of Yates' collections of fossils and artifacts are in eastern museums.
8. *Santa Barbara Independent*, Dec. 22, 1891.
9. *Santa Barbara Morning Press*, Feb. 27, 1894.
10. *San Francisco Morning Call*, March 21, 1888; also Ms. 26 pp. Bancroft Library.
11. *Santa Cruz Surf*, March 2, 1897.